FOR PUBLICATION

UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

TERADATA CORPORATION; TERADATA US, INC.; TERADATA OPERATIONS, INC., *Plaintiffs-Appellants*, v. SAP SE; SAP AMERICA, INC.; SAP LABS, LLC, *Defendants-Appellees*.	No. 23-16065 D.C. No. 3:18-cv-03670-WHO OPINION

Appeal from the United States District Court
for the Northern District of California
William Horsley Orrick, District Judge, Presiding

Argued and Submitted February 12, 2024
San Francisco, California

Filed December 19, 2024

Before: Eric D. Miller, Bridget S. Bade, and Lawrence VanDyke, Circuit Judges.

Opinion by Judge Miller

SUMMARY*

Antitrust / Trade Secrets

The panel reversed the district court's summary judgment in favor of SAP SE in Teradata Corporation's action alleging that SAP illegally conditioned sales of its business-management software on sales of its back-end database engine in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, and misappropriated Teradata's trade secrets in violation of the California Uniform Trade Secrets Act.

The panel reversed the district court's summary judgment in favor of SAP on Teradata's tying claim under Section 1 of the Sherman Act. As an initial matter, the panel held that the district court abused its discretion by excluding an expert's testimony on market definition and the market-power conclusions that followed from it. With the expert's testimony, the panel held that Teradata raised a triable issue as to market power in the tying market under either of two different analytical frameworks—the per se rule and the rule of reason—and therefore the district court erred in granting summary judgment in favor of SAP on Teradata's tying claim.

The panel also reversed the district court's summary judgment in favor of SAP on Teradata's trade secrets claim because Teradata created triable disputes as to whether it properly designated the batched merge method—a technique for efficient aggregation of large batches of data—as confidential information under the parties' agreements, and

* This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

whether the parties' agreements gave SAP a license to use the batched merge method in its products.

COUNSEL

Deanne E. Maynard (argued), Bradley S. Lui, Mark L. Whitaker, David M. Cross, Mary Prendergast, Samuel B, Goldstein, and Brian R. Matsui, Morrison & Foerster LLP, Washington, D.C.; Jack W. Londen and James R. Sigel, Morrison & Foerster LLP, San Francisco, California; Bryan J. Wilson, Morrison & Foerster LLP, Palo Alto, California; Alexandra M. Avvocato, Morrison & Foerster LLP, New York, New York; for Plaintiffs-Appellants.

Kannon K. Shanmugam (argued), Kenneth A. Gallo, J. Steven Baughman, and Abigail F. Vice, Paul Weiss Rifkind Wharton & Garrison LLP, Washington, D.C.; Kristin L. Cleveland, Klaus H. Hamm, Klarquist Sparkman LLP, Portland, Oregon; Joshua L. Fuchs and Joseph M. Beauchamp, Jones Day, Houston, Texas; Nathaniel P. Garrett, Jones Day, San Francisco, California; Tharan G. Lanier and Catherine T. Zeng, Jones Day, Palo Alto, California; Gregory A. Castanias, Jones Day, Washington, D.C.; for Defendants-Appellees.

Patrick M. Kuhlmann (argued), Daniel E. Haar, and Nickolai G. Levin, Attorneys; David B. Lawrence, Policy Director; Doha G. Mekki, Principal Deputy Assistant Attorney General; United States Department of Justice, Antitrust Division, Appellate Section, Washington, D.C.; Bradley Grossman, Attorney; Joel Marcus, Deputy General Counsel; Anisha S. Dasgupta, General Counsel; Federal Trade Commission, Washington, D.C.; for Amici Curiae United States of America and The Federal Trade Commission.

Joshua M. Halen, Holland & Hart LLP, Reno, Nevada; Cory A. Talbot, Holland & Hart LLP, Salt Lake City, Utah; Cristina A. Mulcahy, Holland & Hart LLP, Santa Fe, New Mexico; for Amicus Curiae Economists.

OPINION

MILLER, Circuit Judge:

Teradata Corporation sued SAP SE, alleging that SAP illegally conditioned sales of its business-management software on sales of its back-end database engine in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, and misappropriated Teradata's trade secrets in violation of the California Uniform Trade Secrets Act, Cal. Civ. Code § 3426. The district court granted summary judgment to SAP. Because material factual disputes preclude summary judgment as to each claim, we reverse and remand for further proceedings.

I

SAP sells enterprise resource planning (ERP) software, which allows companies to manage data required to conduct day-to-day business activities such as finance, project management, and supply-chain operations. ERP applications operate on transactional databases, which are designed to process large numbers of simple transactions and to ensure that all of the application's users have access to a uniform set of data so that queries will yield consistent results.

Teradata sells enterprise data and warehousing (EDW) software. An EDW is a type of analytical database that is designed to integrate and store data from various sources—

including from transactional databases—and restructure it for analysis. Teradata's flagship product is the Teradata Database, an EDW that employs highly scalable computing architecture to process and analyze vast amounts of data. Central to the Teradata Database is the "batched merge" method, a technique for efficient aggregation of large batches of data.

In 2008, SAP and Teradata began the "Bridge Project," a joint venture to develop software integrating SAP's front-end applications with the Teradata Database's back-end computing architecture. The companies entered two agreements to protect their intellectual property: a software development cooperation agreement, which restricted disclosures of each party's confidential information, and a mutual non-disclosure agreement, which specified how to maintain the confidentiality of information that each party shared to further the venture.

During the course of the joint venture, the Bridge Project encountered technical difficulties, and Teradata's senior engineer, John Graas, proposed incorporating the batched merge method into the Bridge Project software. To that end, he sent SAP a design document, labeled "Teradata Confidential," that discussed the batched merge method.

The Bridge Project ultimately yielded a product called Teradata Foundation, which resolved the technical difficulties by bridging the "language gap" that was preventing SAP's front-end application and Teradata's back-end computer architecture from communicating with each other. While the project was underway, SAP had been developing its own EDW product called SAP HANA. In 2011, two months after releasing HANA, SAP terminated

the Bridge Project and stopped supporting, selling, and marketing Teradata Foundation.

In 2015, SAP released an updated version of its ERP application, S/4HANA, and it combined that application with HANA in a single sales offering. In other words, customers seeking to purchase the S/4HANA application must purchase HANA as well—either with a full-use license that has no restrictions on how they can use HANA's data or with a cheaper "runtime" license that restricts their ability to export HANA's data for use with third-party products. Since SAP released S/4HANA, 88 percent of SAP's customers have purchased HANA with a runtime license.

In 2018, Teradata brought this action against SAP in the Northern District of California. As relevant here, it alleged that SAP (1) unlawfully tied sales of S/4HANA to purchases of HANA and (2) misappropriated Teradata's trade secrets involving the batched merge method. SAP counterclaimed, alleging that Teradata had infringed various SAP patents.

To support its antitrust claims, Teradata presented a report from Dr. John Asker, a Professor of Economics at the University of California, Los Angeles. Asker opined that the relevant antitrust product market for S/4HANA was "core ERP products for large enterprises," while HANA was part of a market defined as "EDW solutions with [online analytical processing] capabilities for large enterprises." Using those definitions of the relevant markets, he concluded that SAP had market power in the former market and that its conduct harmed competition in the latter.

SAP moved for summary judgment on Teradata's claims and sought to exclude portions of Asker's testimony. The district court granted summary judgment to SAP on both of Teradata's claims that are at issue here. The court excluded

portions of Asker's testimony on market definition, market power, and harm to competition, finding his methodology unreliable and his opinion contradicted by undisputed facts. Without Asker's testimony, the court determined that Teradata failed to create a material dispute on its tying claim. The court also concluded that the trade secret claim failed because Teradata had not designated the batched merge method as confidential in its communications with SAP and, in any event, the parties' agreements granted SAP the right to use the method in its own products.

The district court's order did not fully resolve the patent counterclaims. But having rejected all of Teradata's claims, the court entered partial final judgment under Federal Rule of Civil Procedure 54(b).

Teradata appealed to the United States Court of Appeals for the Federal Circuit, which has exclusive jurisdiction over any appeal "in any civil action arising under, or in any civil action in which a party has asserted a compulsory counterclaim arising under, any Act of Congress relating to patents." 28 U.S.C. § 1295(a)(1). The Federal Circuit determined that it lacked jurisdiction because SAP's patent-infringement counterclaims did not arise out of the same "transaction or occurrence" as Teradata's claims, so they were not compulsory counterclaims. Fed. R. Civ. P. 13(a); *Teradata Corp. v. SAP SE*, No. 2022-1286, 2023 WL 4882885, at *13 (Fed. Cir. Aug. 1, 2023). It therefore transferred the appeal to this court. *See* 28 U.S.C. § 1631.

II

Section 1 of the Sherman Act prohibits "[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce." 15 U.S.C. § 1. "Notwithstanding the apparent breadth of that provision, the

Supreme Court has long interpreted it 'to outlaw only *unreasonable* restraints.'" *Flaa v. Hollywood Foreign Press Ass'n*, 55 F.4th 680, 688 (9th Cir. 2022) (quoting *Ohio v. American Express Co.*, 585 U.S. 529, 540 (2018) (*Amex*)).

This case involves an alleged tying arrangement—that is, an arrangement in which "the seller conditions the sale of one product (the tying product) on the buyer's purchase of a second product (the tied product)." *Cascade Health Sols. v. PeaceHealth*, 515 F.3d 883, 912 (9th Cir. 2008). According to Teradata, SAP unlawfully required customers of S/4HANA (the alleged tying product) to purchase either a runtime or full-use license for HANA (the alleged tied product). We evaluate that claim under two different analytical frameworks: the per se rule and the rule of reason.

Restraints with "predictable and pernicious anticompetitive effect[s]" and "limited potential for procompetitive benefit" are per se unreasonable. *State Oil Co. v. Khan*, 522 U.S. 3, 10 (1997). Under the per se approach, restraints may be "conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use." *Northwest Wholesale Stationers, Inc. v. Pacific Stationery & Printing Co.*, 472 U.S. 284, 289 (1985) (quoting *Northern Pac. Ry. Co. v. United States*, 356 U.S. 1, 5 (1958)).

"Typically only 'horizontal' restraints—restraints 'imposed by agreement between competitors'—qualify as unreasonable *per se*." *Amex*, 585 U.S. at 540–41 (2018) (quoting *Business Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717, 730 (1988)). But certain tying arrangements are also subject to per se condemnation. *See Jefferson Par. Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 15 (1984), *abrogated on*

other grounds by Illinois Tool Works Inc. v. Independent Ink, Inc., 547 U.S. 28, 31 (2006); *Cascade Health Sols.*, 515 F.3d at 913. When a seller has market power in the tying market, a tying arrangement could allow "the seller [to] leverage this market power . . . to exclude other sellers of the tied product" and thereby extend its market power to the tied product market. *Cascade Health Sols.*, 515 F.3d at 912. Accordingly, a "tie is *per se* unlawful if (1) the defendant has market power in the tying product market, and (2) the 'tying arrangement affects a "not insubstantial volume of commerce" in the tied product market.'" *Epic Games, Inc. v. Apple, Inc.*, 67 F.4th 946, 997 (9th Cir. 2023) (quoting *Blough v. Holland Realty, Inc*, 574 F.3d 1084, 1089 (9th Cir. 2009)). A "not insubstantial" volume of commerce is merely a "not '*de minimis*'" amount. *Id.* (quoting *Datagate, Inc. v. Hewlett-Packard Co.*, 60 F.3d 1421, 1426 (9th Cir. 1995)).

Even when a tie is not per se illegal, it may still be unreasonable under the rule of reason. The rule of reason requires courts to determine whether "a particular contract or combination is in fact unreasonable and anticompetitive," *California ex rel. Harris v. Safeway, Inc.*, 651 F.3d 1118, 1133 (9th Cir. 2011) (quoting *Texaco Inc. v. Dagher*, 547 U.S. 1, 5 (2006)), by "conduct[ing] a fact-specific assessment of 'market power and market structure,'" *Amex*, 585 U.S. at 541 (quoting *Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 768 (1984)). Under the rule of reason, courts apply a "three-step, burden-shifting framework" in which "the plaintiff has the initial burden to prove that the challenged restraint has a substantial anticompetitive effect that harms consumers in the relevant market"—that is, in the tied market. *Amex*, 585 U.S. at 541 (citing Phillip E. Areeda & Herbert Hovenkamp, *Fundamentals of Antitrust Law* § 15.02[B] (4th ed. 2017)).

"If the plaintiff carries its burden, then the burden shifts to the defendant to show a procompetitive rationale for the restraint." *Id.* at 541. "If the defendant makes this showing, then the burden shifts back to the plaintiff to demonstrate that the procompetitive efficiencies could be reasonably achieved through less anticompetitive means." *Id.* at 542.

Under either the per se rule or the rule of reason, an essential first step is identifying relevant markets "within which significant substitution in consumption or production occurs." *Amex*, 585 U.S. at 543 (quoting Areeda & Hovenkamp, *Fundamentals of Antitrust Law* § 5.02); *see FTC v. Qualcomm Inc.*, 969 F.3d 974, 992 (9th Cir. 2020) ("A threshold step in any antitrust case is to accurately define the relevant market . . . ."). A relevant market encompasses "the group or groups of sellers or producers who have actual or potential ability to deprive each other of significant levels of business." *Thurman Indus., Inc. v. Pay 'N Pak Stores, Inc.*, 875 F.2d 1369, 1374 (9th Cir. 1989).

"The principle most fundamental to product market definition is 'cross-elasticity of demand,'" or "the extent to which consumers view two 'products [as] be[ing] reasonably interchangeable' or substitutable for one another." *Coronavirus Rep. v. Apple, Inc.*, 85 F.4th 948, 955 (9th Cir. 2023) (alterations in original) (first quoting *Kaplan v. Burroughs Corp.*, 611 F.2d 286, 291 (9th Cir. 1979); and then quoting *Gorlick Distrib. Ctrs., LLC v. Car Sound Exhaust Sys., Inc.*, 723 F.3d 1019, 1025 (9th Cir. 2013)). Cross-elasticity of demand helps determine the boundaries of a market: When products are "reasonably interchangeable," they are "considered as being in the same market for the purpose of an antitrust claim." *Id.*; *see Olin Corp. v. FTC*, 986 F.2d 1295, 1298 (9th Cir. 1993). One standard approach to analyzing cross-elasticity of demand is the hypothetical

monopolist test. Under this approach, products form a relevant market if a seller could profitably impose a small but significant and non-transitory increase in price—often of five percent—over a group of products. *Saint Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke's Health Sys., Ltd.*, 778 F.3d 775, 784 (9th Cir. 2015); U.S. Department of Justice & Federal Trade Commission, Merger Guidelines § 4.3.B (2023) ("When considering price, the Agencies will often use a [small but significant and non-transitory increase in price] of five percent of the price charged by firms for the products or services to which the merging firms contribute value. The Agencies, however, may consider a different term or a price increase that is larger or smaller than five percent."). If a seller could not profitably impose such a price increase, then substitute products must exist, so the market definition must be expanded to include them. *Id.*

III

With those principles in mind, we consider Teradata's tying claim. But before assessing the merits of the claim, we must review the district court's exclusion of Asker's testimony on market definition, market power, and harm to competition. We review a district court's decision to exclude expert testimony for abuse of discretion. *Hardeman v. Monsanto Co.*, 997 F.3d 941, 960 (9th Cir. 2021).

Under Federal Rule of Evidence 702, expert testimony must be "not only relevant, but reliable." *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 (1993). "[D]istrict courts are vested with 'broad latitude' to 'decid[e] how to test an expert's reliability' and 'whether or not [an] expert's relevant testimony is reliable.'" *Murray v. Southern Route Mar. SA*, 870 F.3d 915, 923 (9th Cir. 2017) (emphasis omitted) (quoting *Kumho Tire Co. v. Carmichael*, 526 U.S.

137, 152–53 (1999)). The court may "assess the [expert's] reasoning or methodology, using as appropriate such criteria as testability, publication in peer reviewed literature, and general acceptance." *Primiano v. Cook*, 598 F.3d 558, 564 (9th Cir. 2010). While evidence that "suffer[s] from serious methodological flaws . . . can be excluded," *Obrey v. Johnson*, 400 F.3d 691, 696 (9th Cir. 2005), courts are not permitted to "determine the veracity of the expert's conclusions at the admissibility stage," *Elosu v. Middlefork Ranch Inc.*, 26 F.4th 1017, 1026 (9th Cir. 2022). "Shaky but admissible evidence is to be attacked by cross examination, contrary evidence, and attention to the burden of proof, not exclusion." *Primiano*, 598 F.3d at 564.

The district court determined that Asker's testimony about market definition and harm to competition was premised on unreliable methodologies. The court also held that because Asker's "methodology for defining the relevant tying market [was] unreliable, his conclusions that SAP has market power in his proposed market should also be excluded." We disagree and conclude that the court abused its discretion in excluding Asker's testimony.

A

Asker defined the relevant markets primarily based on a qualitative analysis of SAP's business documents and other evidence. He "corroborate[d]" his results using various quantitative methodologies, including an aggregate diversion ratio analysis employing customer relationship management data from SAP and Oracle (SAP's main competition in the tying market) that measured the number of times sales-representative reports mentioned certain competitors. Because Asker employed reasonable methodologies in defining the relevant markets, the district

court abused its discretion in excluding his market-definition testimony and his conclusions about SAP's market power in the tying market.

1

Asker defined the tying market as "core ERP products for large enterprises." He defined large enterprises as "those with high annual revenues, a large number of staff, high data volume and complexity, and many ERP users." Recognizing that "[t]he exact definition . . . varies slightly across industry participants," he explained that "'large enterprises' are generally companies with over 1,000 or 1,500 employees and over 125 users of the ERP product" because those enterprises have ERP needs that differ from those of smaller enterprises.

The district court excluded the "large enterprises" portion of Asker's tying-market-definition testimony because it determined that Asker's qualitative approach to defining "large enterprises" was unreliable. The court faulted Asker for failing to "reconcile" his "distinct separate market with the broad continuum of customers and varied and flexible approach to customer size taken by the industry." Specifically, the court expressed concern that "there is no clear line separating [large] companies or the products they buy from others."

The district court's decision appears at least implicitly to reflect a substantive rule of antitrust law—namely, that "large enterprises" is too imprecise to describe a properly defined market. That rule is legally erroneous because an antitrust plaintiff need not specify a market by precise "metes and bounds." *Times-Picayune Pub. Co. v. United States*, 345 U.S. 594, 611 (1953). Instead, antitrust law recognizes that "some artificiality" and "fuzziness [are]

inherent in any attempt to delineate the relevant . . . market." *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321, 360 n.37 (1963); *accord Oahu Gas Serv., Inc. v. Pacific Res., Inc.*, 838 F.2d 360, 364 (9th Cir. 1988) ("The issue of product definition [is] always an inexact science often requiring distinctions in degree rather than kind . . . .").

Alternatively, the district court's decision can be read not as demanding a clear line distinguishing "large" enterprises from other companies, but merely requiring Asker to explain how he selected the specific definition he offered. *See United States v. Hermanek*, 289 F.3d 1076, 1094 (9th Cir. 2002) ("As a prerequisite to making the Rule 702 determination that an expert's methods are reliable, the court must assure that the methods are adequately explained."). SAP attempts to defend the court's analysis on that basis, arguing that Asker did not explain why he defined "large enterprises" as those with "1,000 to 1,500 employees and over 125 users" when the documents on which he relied lacked common metrics or numerical thresholds distinguishing "large enterprises" from others.

Even assuming that the district court's analysis rested on Asker's failure to explain how he arrived at his more precise definition of "large enterprises," its *Daubert* analysis was still flawed. In this context, "large" is a sufficiently intuitive concept that even if Asker's selection of a particular numerical cutoff was somewhat arbitrary, we cannot say that his failure to explain the choice cast doubt on the reliability of his methodology. *Cf. Pacific Choice Seafood Co. v. Ross*, 976 F.3d 932, 943 (9th Cir. 2020). Asker's more general definition of "large enterprises" as "those with high annual revenues, a large number of staff, high data volume and complexity, and many ERP users" provides grounding for his more precise definition, assuring us that it was not based

on "mere subjective belief[] or unsupported speculation." *Millenkamp v. Davisco Foods Int'l, Inc.*, 562 F.3d 971, 979 (9th Cir. 2009). Inconsistencies in how "large" is quantified across Asker's sources merely illustrate that "the relevant competitive market is not ordinarily susceptible to a 'metes and bounds' definition," *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 331 (1961), which, as we have already explained, is an insufficient basis for rejecting a proposed market definition.

The district court also found unreliable Asker's quantitative analyses, which he used to corroborate his conclusion that large enterprises form a separate market. Because those analyses were merely confirmatory, any flaws they might have would not be a sufficient basis to exclude his tying-market testimony. *See Wendell v. GlaxoSmithKline LLC*, 858 F.3d 1227, 1233 (9th Cir. 2017) (explaining that district courts must "tak[e] into account the broader picture of the experts' overall methodology"); *Obrey*, 400 F.3d at 695 ("[O]bjections to a study's completeness generally go to 'the weight, not the admissibility of the statistical evidence,' and should be addressed by rebuttal, not exclusion." (quoting *Mangold v. California Pub. Utils. Comm'n*, 67 F.3d 1470, 1476 (9th Cir. 1995))). The district court therefore abused its discretion in excluding Asker's tying-market definition and the market-power conclusions that followed from it.

2

Asker defined the tied market as "EDW products with [online analytical processing] capabilities for large enterprises." The district court excluded Asker's testimony about the tied-market definition, finding that Asker's use of an aggregate diversion ratio analysis based on customer

relationship management data made his methodology unreliable.

One way to implement the hypothetical monopolist test is to compare two values known as the critical loss threshold and the aggregate diversion ratio. *United States v. H & R Block, Inc.*, 833 F. Supp. 2d 36, 63 (D.D.C. 2011); *see FTC v. Wilh. Wilhelmsen Holding ASA*, 341 F. Supp. 3d 27, 57 (D.D.C. 2018). Typically, an increase in the price of a product leads to a decrease in sales. The critical loss threshold is the largest percentage decrease in sales that the hypothetical monopolist could experience before the price increase would no longer be profitable. *See H & R Block, Inc.*, 833 F. Supp. 2d at 63; *see also FTC v. Swedish Match N. Am., Inc.*, 131 F. Supp. 2d 151, 160 (D.D.C. 2000). "The aggregate diversion ratio for any given product represents the proportion of lost sales that are recaptured by all other firms in the proposed market as the result of a price increase." *H & R Block*, 833 F. Supp. 2d at 63. "Since these lost sales are recaptured within the proposed market, they are not lost to the hypothetical monopolist." *Id.* If the aggregate diversion ratio exceeds the critical loss threshold, then the hypothetical monopolist will recapture enough sales to make a small but significant and non-transitory increase in price profitable across the monopolist's entire business. The products controlled by the hypothetical monopolist thus form a relevant market. *See id.*; *FTC v. IQVIA Holdings Inc.*, 710 F. Supp. 3d 329, 371 (S.D.N.Y. 2023); Louis Kaplow & Carl Shapiro, *Antitrust*, *in* 2 The Handbook of Law and Economics 1073, 1174 (A. Mitchell Polinsky & Steven Shavell eds., 2007).

To the extent the district court's ruling was premised on a general rejection of aggregate diversion ratio analysis as a market-definition tool, it was unreasonable. Such analysis

"is commonly used" by economists to "frame the empirical estimation of demand responsiveness for the purpose of delineating relevant product markets." Michael L. Katz & Carl Shapiro, *Critical Loss: Let's Tell the Whole Story,* 17 Antitrust 49, 49–50 (2003); *see also* Merger Guidelines § 4.3.C & n.85 (explaining the use of aggregate diversion ratio analysis to implement the hypothetical monopolist test).

The district court more specifically faulted Asker's analysis because it used customer relationship management data, which captures the firms that competed for a given sales opportunity. The court believed that such data "cannot measure . . . cross-elasticity of demand" because it "does not measure customer responses to changes in price." Asker acknowledged the limitations of customer relationship management data as a measure of expected substitution effects, noting that such data "may not always be a reliable indicator of the actual competitors faced by a company," so "it is appropriate to be cautious in using the data." But as he explained, such data still "can be informative for market definition." *See FTC v. Tapestry, Inc.*, 2024 WL 4647809, at *30–31 (S.D.N.Y. Nov. 1, 2024) (rejecting argument that expert's [aggregate diversion ratio] analysis "is unreliable because the survey data did not ask consumer[s] about switching their purchase . . . in response to a price increase," and noting that "[e]conomists regularly estimate diversion ratios using non-price-response data") (internal quotation marks omitted).

Asker's methodology did not fall "outside the range where experts might reasonably differ." *Kumho Tire*, 526 U.S. at 153. The hypothetical monopolist test does not require showing actual diversion in response to price changes, only *likely* diversion. Although Asker's data may

not have captured actual transactions, it showed that other companies viewed SAP as a primary competitor, suggesting that customers would substitute SAP's products for rival products in response to price increases.

The few courts to have considered the issue have endorsed the use of customer relationship management and other non-price data to calculate the aggregate diversion ratio. *See Wilhelmsen*, 341 F. Supp. 3d at 57–58 (endorsing expert's reliance on various sources of data, including customer relationship management data, to calculate aggregate diversion); *FTC v. Sysco Corp.*, 113 F. Supp. 3d 1, 35–37 (D.D.C. 2015) (relying on customer relationship management and other data that did not capture customer responses to price); *H & R Block, Inc.*, 833 F. Supp. 2d at 63–65 (relying on IRS switching data showing taxpayers who left a particular company's tax-preparation product in a given tax year). Data recording actual customer responses to price changes is frequently unavailable, so a categorical rule requiring such data would be unrealistic. *See* Merger Guidelines § 4.1 (explaining that federal agencies "take into account . . . the availability or quality of data or reliable modeling techniques," recognizing "that the goal of economic modeling is not to create a perfect representation of reality, but rather to inform an assessment of the likely change in firm incentives").

The district court also reasoned that Asker's methodology was "inconsistent with his methodology when defining the relevant [tying] market." In his tying-market aggregate diversion ratio analysis, Asker included the minimum number of market participants and concluded that the relevant market consisted of only Oracle and SAP. But in his tied-market aggregate diversion ratio analysis, he included more than just the minimum number of market

participants to bring SAP into the market definition. That difference in methodology was grounded in economic logic and well-established market-definition principles. Looking to a narrower set of market participants is appropriate when analyzing the tying market because "the competitive significance of the parties may be understated by their share when calculated on a market that is broader than needed to satisfy the [hypothetical monopolist test], particularly when the market includes products that are more distant substitutes." Merger Guidelines § 4.4. By contrast, broadening the number of market participants is appropriate when analyzing the tied market, where the purpose is to determine the tied-product competitors harmed by the tie. Including more market participants ensures that competitors that may be harmed are not excluded from the analysis. As Asker put it, market definition "must be relevant to the theory of harm at issue," which in this case was "via a tie." Therefore, to exclude SAP from the tied market even though "documentary evidence clearly links Teradata and SAP as competitors in the EDW market," and a market definition including SAP "passes the [hypothetical monopolist test], would run counter to common sense and good economic practice." Of course, a trier of fact would not have to accept Asker's ultimate conclusions. But his approach was explained sufficiently to satisfy Rule 702. *See Hermanek*, 289 F.3d at 1094.

More fundamentally, the district court abused its discretion by narrowly focusing on Asker's aggregate diversion ratio methodology as its sole justification for excluding his tied-market testimony. *See Wendell*, 858 F.3d at 1233 (holding that the district court abused its discretion when it ignored a variety of evidence supporting the expert's conclusion). As with the tying-market definition, the

"primary foundation" for Asker's tied-market definition was not his aggregate diversion ratio analysis, but rather his qualitative analysis of "the deposition testimony and documentary record." The district court *rejected* SAP's challenges to Asker's qualitative analysis, determining that Asker's conclusions were consistent with the evidence. The court therefore seems to have excluded Asker's testimony based solely on its determination that his aggregate diversion ratio analysis was unreliable. That was an abuse of discretion.

B

As to harm to competition in the tied market, Asker opined that by "causing sales of HANA that otherwise would not have occurred," the tie "distorts purchasers' choices of EDW products, which harms purchasers and competitors competing for those sales." In reaching that conclusion, Asker analyzed SAP business documents and sales data to understand SAP's use of S/4HANA as leverage to sell HANA, HANA's market gains, the effects of HANA's "runtime" and "full use" licenses, and barriers to entry and fixed costs in the tied market. The district court found Asker's harm-to-competition testimony unreliable on two grounds, neither of which was reasonable.

First, the district court faulted Asker for failing to analyze how SAP's tie affected several major competitors in the relevant EDW market, including Oracle, Microsoft, IBM, and Amazon. But an expert may extrapolate harm to competition on a market-wide level based on the volume of "tied-product sales covered by tying arrangements" and the "coercion of particular customers." 9 Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶1729h (4th ed. 2018). Here, Asker provided evidence of both, estimating the

percentage of SAP's large-enterprise HANA sales attributable to customers who also purchased its ERP products and analyzing the ways in which SAP conditions access to S/4HANA on customers' purchases of HANA. Although he did not quantitatively analyze the tie's impact on other major EDW competitors, he did provide qualitative evidence of its impact on their market shares. As "long as the evidence is relevant and the methods employed are sound, neither the usefulness nor the strength of statistical proof determines admissibility under Rule 702." *Obrey*, 400 F.3d at 696.

Second, the district court rejected, as "unwarranted," Asker's assumption that HANA—whether sold with a runtime or a full-use license—"is necessarily always sold as an EDW." The court reasoned that HANA purchased with a runtime license is not an EDW because customers cannot import data from other sources or use HANA to support non-S/4HANA applications. As to HANA purchased with a full-use license, the district court acknowledged its EDW capabilities but faulted Asker for failing to identify specific customers who use full-use HANA as an EDW.

A jury could infer, however, that consumers use both runtime and full-use HANA as EDWs. Runtime customers might not use HANA directly with third-party products, but nothing precludes them from using HANA with complementary SAP applications. Indeed, SAP documents suggest that when HANA is used with SAP's Business Warehouse application, a data reporting tool, it offers traditional EDW functionality. Teradata also points to evidence suggesting that when paired with Business Warehouse, runtime HANA can use data from third-party applications to perform advanced analytics. SAP embeds Business Warehouse into all of its ERP systems, including

S/4HANA, and it offers a version of the application specifically designed to operate with HANA to deliver "real-time enterprise-wide analytics."

Asker's claim that customers actually use both runtime and full-use HANA as EDWs was a "reasonable extrapolation[]" from the evidence. *Murray*, 870 F.3d at 923. SAP business documents describe the company's strategy to use HANA to displace other EDW providers. And SAP's procompetitive justifications for the tie centered on HANA's ability to simultaneously leverage transactional and analytical capabilities. If customers did not use HANA as an EDW, the tie would not further SAP's purported strategic or procompetitive objectives. Given SAP's stated objectives, it was reasonable for Asker to conclude that customers use HANA as an EDW.

As with Asker's other conclusions, a trier of fact might disagree. But at this stage, it is not our role to determine "the veracity of the expert's conclusions." *Elosu*, 26 F.4th at 1026. Asker's assumption that runtime HANA provides analytical functionality is sufficiently plausible to constitute a "competing version[] of the evidence." *Id.*

In an effort to defend the district court's exclusion of Asker's testimony, SAP argues that Asker failed to distinguish between tied and non-tied HANA sales. But Asker addressed that issue in concluding that the tie "is causing sales of HANA that otherwise would not have occurred." Asker found, for example, that "the overwhelming majority of HANA sales have been made to S/4HANA customers." He also provided evidence that customers were concerned that the tie would force them to forgo investments in their preferred databases. Asker reasonably inferred from this evidence that tied sales, not

standalone sales, drove HANA's market share. *See Kennedy v. Collagen Corp.*, 161 F.3d 1226, 1230 (9th Cir. 1998) ("[C]ausation need not be established to a high degree of certainty for expert testimony to be admissible under Rule 702.").

IV

Having determined that the district court abused its discretion in excluding Asker's market-definition and harm-to-competition testimony, we turn to whether summary judgment was proper on Teradata's tying claim. "We review a district court's grant of summary judgment de novo and, viewing the evidence in the light most favorable to the non-movant, determine whether there are any genuine issues of material fact and whether the district court correctly applied the relevant substantive law." *Honey Bum, LLC v. Fashion Nova, Inc.*, 63 F.4th 813, 819 (9th Cir. 2023) (quoting *Social Techs. LLC v. Apple Inc.*, 4 F.4th 811, 816 (9th Cir. 2021)).

As a preliminary matter, we must determine whether to evaluate Teradata's tying claim under the per se approach or the rule of reason. SAP argues that because tying arrangements are vertical restraints, they must, "like nearly every . . . vertical restraint," be evaluated under the rule of reason. *Amex*, 585 U.S. at 541. The "vertical restraint" label applies to a wide array of agreements between sellers and buyers. The classic type of vertical restraint is an "agreement between firms at different levels of distribution," such as between a manufacturer and its dealers. *Id.* (quoting *Business Elecs. Corp.*, 485 U.S. at 730). Ties are different: They are not agreements between multiple firms, but "arrangement[s] where a supplier agrees to sell a buyer a product (the tying product), but 'only on the condition that the buyer also purchases a different (or tied) product.'"

Brantley v. NBC Universal, Inc., 675 F.3d 1192, 1199 (9th Cir. 2012) (quoting *Northern Pac. Ry. Co.*, 356 U.S. at 5). And although other kinds of vertical arrangements are subject to the rule of reason, tying arrangements—or at least some of them—have long been subject to per se condemnation. *See International Salt Co. v. United States*, 332 U.S. 392, 396 (1947), *abrogated on other grounds by Illinois Tool Works Inc.*, 547 U.S. at 31; *Jefferson Par.*, 466 U.S. at 9 (noting that the per se tying rule "has been endorsed by this Court many times").

To be sure, tying arrangements are subject to a "modified" per se approach under which a tie is unlawful only "if (1) the defendant has market power in the tying product market, and (2) the 'tying arrangement affects a "not insubstantial volume of commerce" in the tied product market.'" *Epic Games*, 67 F.4th at 996–97 (quoting *Blough*, 574 F.3d at 1089); *see Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 462 (1992). In other words, unlike the per se rule for horizontal restraints, under which "a restraint is presumed unreasonable without inquiry into the particular market context," the tying per se rule incorporates an inquiry into market power. *National Collegiate Athletic Ass'n v. Board of Regents of Univ. of Okla.*, 468 U.S. 85, 100 (1984); *see Epic Games*, 67 F.4th at 997. But the fact remains that tying arrangements meeting the requirements of the modified per se rule are deemed unreasonable as a matter of law. Nothing in *Amex*—a case that did not involve tying arrangements—disturbs that long-settled rule.

SAP urges us to depart from the per se approach because, it says, Teradata's tying claim "is predicated on innovative conduct within a technology market." In *Epic Games*, we adopted the District of Columbia Circuit's reasoning in *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir.

2001), to conclude that the per se approach is inappropriate when (1) a tie "involv[es] software that serves as a platform for third-party applications," (2) the tied good is "technologically integrated with the tying good," and (3) the tie presents "purported procompetitive benefits that could not be achieved by adopting quality standards for third-party suppliers of the tied good." *Epic Games*, 67 F.4th at 997 (quoting *Microsoft*, 253 F.3d at 89–90).

SAP claims that this case fits under *Epic Games* and *Microsoft*'s narrow exception to the per se rule. According to SAP, HANA is "platform software" because it "make[s] available to ERP applications thousands of functions . . . from data storage and retrieval to mathematical computations." But unlike in *Epic Games* and *Microsoft*, the tying and the tied products here are not technologically or physically integrated. In *Epic Games*, Apple's in-app payment processor was integrated with its app distribution platform because both were built into the iPhone operating system. *See* 67 F.4th at 967–68, 997. *Microsoft* also involved "an integrated physical product," in which Internet Explorer's application programming interfaces were embedded into the Windows operating system. 253 F.3d at 90. HANA, on the other hand, is not a software functionality that is technologically or physically integrated with SAP's ERP application, but a standalone EDW product that SAP can and does sell independently of S/4HANA. In that sense, this case is more akin to standard contractual tie cases, which courts regularly evaluate under the per se framework. *See, e.g.*, *Northern Pac. Ry. Co.*, 356 U.S. at 5–8 (conditioning lease of land on agreement to ship products on defendant's railroad).

We appreciate SAP's concern that the per se rule for ties, especially as applied to software markets, sits uneasily with

the rationale courts have articulated for the per se rule in other contexts—that a class of practices can be declared unreasonable because judicial experience has shown that they are almost always anticompetitive and lack redeeming value. *See Qualcomm Inc.*, 969 F.3d at 990–91 ("[N]ovel business practices—*especially* in technology markets—should not be 'conclusively presumed to be unreasonable and therefore illegal without elaborate inquiry as to the precise harm they have caused or the business excuse for their use.'" (quoting *Microsoft*, 253 F.3d at 91)); *Epic Games*, 67 F.4th at 998 (expressing concern that when applied in inappropriate contexts, the per se rule risks "dampening innovation and undermining the very competitive process that antitrust law is meant to protect"). But as the Supreme Court has made clear, "[i]t is far too late in the history of our antitrust jurisprudence to question the proposition that certain tying arrangements"—those in which a seller uses its tying-market power to capture a non–de minimis volume of commerce—"are unreasonable 'per se.'" *Jefferson Par.*, 466 U.S. at 9. We have no basis for expanding *Epic Games*'s narrow exception to that rule to cover software markets generally. *See Microsoft*, 253 F.3d at 95.

Regardless, with Asker's testimony, Teradata has raised a material dispute under either approach. Under the per se approach, Asker's testimony creates a triable question as to market power in the tying market—the only element in dispute. Asker opined that SAP has economically significant market power in the core ERP market for large enterprises based on SAP's sizable market share, high profit margins, and high barriers to entry and switching costs. As Asker explained, high switching costs make it more expensive to switch to an alternative ERP provider than to adopt

S/4HANA, and high barriers to entry inhibit new competitors that might reduce SAP's power in the ERP market. SAP's high profit margins on core ERP products for large enterprises, combined with other evidence of coercion, provide another "strong indication of market power." *FTC v. Actavis, Inc.*, 570 U.S. 136, 157 (2013). A trier of fact could determine from that evidence that SAP had enough market power in the core ERP market to coerce large enterprises into purchasing HANA.

Under the rule of reason, Asker's testimony also raises a triable dispute as to whether the tie has substantial anticompetitive effects in the tied market. With Asker's testimony, Teradata has presented a viable tied-market definition—EDW products with analytical capabilities for large enterprises—and raised a triable dispute as to whether the tie has substantial anticompetitive effects in that market. Asker opined that the tie would eventually foreclose at least 65 percent of the large-enterprise EDW market, well over the level at which the parties agree we should presume foreclosure unreasonable. *See* Areeda & Hovenkamp, *Antitrust Law* ¶1729a (explaining that "foreclosure should be presumed unreasonable when it reaches 30 percent for an individual seller"). Asker derived that estimate from data indicating that 65 percent of the Forbes Global 2000—which lists the world's largest public companies—relies on S/4HANA. Asker also cited SAP documents describing its ERP customers as "locked in" and predicting that a large share of its customers will eventually adopt S/4HANA. Because we consider all tied-product sales attributable to the tie to be foreclosed, a reasonable juror could find that the tie has substantial anticompetitive effects. *See id.* ¶1729h.

Asker also testified that HANA prices were at supra-competitive levels. High prices alone are weak evidence of

market foreclosure, as they can result from procompetitive behavior and increased demand. *See Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 237 (1993) ("[A] jury may not infer competitive injury from price[s] . . . absent some evidence that tends to prove that . . . prices were above a competitive level."); *Amex*, 585 U.S. at 549 (refusing to infer competitive injury from increased prices given that output was expanding at the same time). But here, Asker provided other evidence indicating that HANA's high prices were the result of anticompetitive behavior: that HANA was of lower quality than rival EDWs, and that the "overwhelming majority" of HANA sales were to S/4HANA customers. Absent evidence that demand expanded for procompetitive reasons, such as increased output or quality advantages, a jury could infer that HANA's high prices were a result of substantial market foreclosure.

Asker's differences-in-differences regression analysis quantifying Teradata's lost revenue from the tie further supports his market foreclosure estimations. Contrary to SAP's claim that Asker's regression analysis measured only correlation, differences-in-differences is a standard econometric tool designed to measure causation by isolating the effect of a particular explanatory variable from the effects of other variables. *See* Joshua D. Angrist & Jörn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion* 169–82 (2008) (explaining how differences-in-differences models can yield estimations of causal effects). In this case, Asker compared changes in spending for customers that adopted S/4HANA to changes in spending for a benchmark group of customers to attribute any differences to the adoption of S/4HANA. And as we explained above, the tie's impact on Teradata's sales is a reasonable indication of broader market foreclosure.

V

Finally, we consider Teradata's trade secret claim. The district court granted summary judgment to SAP because it determined that "Teradata failed to comply with its contractual obligation to designate information as confidential when it disclosed the alleged Batched Merge Method trade secret to SAP," and that even if Teradata had adequately designated the information, the agreements gave SAP a contractual right to use the batched merge method in its own products. We conclude that disputed issues of material fact preclude summary judgment on both theories.

A

Teradata has created a triable dispute as to whether it properly designated the batched merge method as confidential information under the parties' agreements. Section 2 of the mutual non-disclosure agreement, which governs the sharing of confidential information during the Bridge Project, specifies that "all information . . . in writing or in other tangible form and clearly identified as confidential or proprietary at the time of disclosure marked with an appropriate legend indicating that the information is deemed confidential or proprietary" will remain confidential. The parties agree that the 2008 design document that Graas sent to SAP—which mentioned the batched merge method as a solution to the problems facing the Bridge Project—"clearly identified" its contents as confidential, as it was marked "Teradata Confidential" on each page.

SAP contends that the document did not provide enough details about the batched merge method to clearly identify the information it sought to protect. But the mutual non-disclosure agreement nowhere requires that a document

marked confidential describe trade secrets in detail to maintain their confidentiality. Notably, the provisions covering *oral* disclosures of trade secrets require that a party "summarize the Confidential Information in writing" within a specified time, a requirement that would make little sense if *written* disclosures had to include all the details of the trade secret. And although SAP suggests that the document merely stated the words "batched merge," it in fact did much more: It detailed the method's essential elements to explain how the method could be used to solve the Bridge Project's performance issues. Whether that level of detail was sufficient is a question for a jury to decide.

B

Teradata has also created a triable dispute as to whether the parties' agreements gave SAP a license to use the batched merge method in its products. The district court concluded that because the batched merge method was an "input" that Teradata provided during the Bridge Project, SAP gained a right to use it outside of the Bridge Project without breaching the parties' confidentiality agreements. The court relied on section 9.4 of the software development cooperation agreement, which grants SAP a "license to use . . . any Input submitted by [Teradata] to SAP with respect to any deliverables or other items that SAP provides or shall provide to [Teradata]." It also invoked section 10.1, which gives SAP the rights to the batched merge method because it was "software code . . . necessary to adapt [SAP's] software to" the Teradata Database.

Teradata points out that, notwithstanding those provisions, section 10.2 provides that "Partner Materials" are to "remain vested exclusively in [Teradata]," and it defines "Partner Materials" as "any programs, tools,

systems, data or materials utilized or made available by [Teradata] in the course of the performance under this Agreement." The dispositive question, therefore, is whether the batched merge method constitutes a "tool" that is encompassed by the reservation of rights in "Partner Materials."

That is a question for the jury. SAP emphasizes that Graas himself described the batched merge method as not a "tool" but a "technique" that leverages unique aspects of the Teradata Database. But Teradata provided other expert testimony describing the method's central step as a "tool" for sending information to and from a database. If a central step in the batched merge method is a "tool," it follows that the full method is also a "tool"—or so a rational juror could infer. That Graas described the method as a "technique" does not necessarily preclude it from *also* being a "tool."

SAP also contends that the batched merge method is not a "tool" because, in computer science, "tool" refers to an "application program." That may be, but "tool" also has a more general definition: "a thing (concrete or abstract) with which some operation is performed." 18 *Oxford English Dictionary* 233 (2d ed. 1989). The context favors that broader understanding because the agreement's definition of "Partner Materials" already includes "programs," so if "tool" meant "application program," then the agreement would list "program" twice, rendering part of the definition superfluous. Contradicting its argument about "application programs," SAP also argues that "tool" refers to tangible articles. But that theory is undermined by the words surrounding "tool" in sections 9.2 and 10.2—"programs," "materials," "systems," and "data"—none of which refers to tangible articles.

SAP also argues that it owns the right to use the batched merge method because that method constitutes "Newly Developed Materials," which the software development cooperation agreement assigns to SAP. The agreement defines "newly developed materials" as "software . . . developed by SAP and/or [Teradata] in connection with or as a result of a party's interaction with the other party." A jury could conclude that the batched merge method is not software developed through SAP's interactions with Graas, but instead is preexisting intellectual property that Teradata developed long before the parties began the Bridge Project. That Graas helped SAP implement the batched merge method to solve technical issues does not transform it into software developed "in connection with or as a result of" the Bridge Project.

Finally, a jury could also conclude that the district court's interpretation cannot be reconciled with the implied covenant of good faith and fair dealing under New York law, which governs the parties' agreements. Under the covenant, "neither party shall do anything which will have the effect of destroying or injuring the right of the other party to receive the fruits of the contract." *Dalton v. Educational Testing Serv.*, 663 N.E.2d 289, 291 (N.Y. 1995) (quoting *Kirke La Shelle Co. v. Paul Armstrong Co.*, 188 N.E. 163, 167 (N.Y. 1933)). "[W]hether particular conduct violates or is consistent with the duty of good faith and fair dealing necessarily depends upon the facts of the particular case, and is ordinarily a question of fact to be determined by the jury or other finder of fact." *Tractebel Energy Mktg. v. AEP Power Mktg.*, 487 F.3d 89, 98 (2d Cir. 2007) (quoting 23 *Williston on Contracts* § 63:22 (4th ed. 2006)). A jury could find that the district court's interpretation violated the covenant by allowing SAP to develop a rival EDW product

using information that Teradata shared to enable SAP's customers to enjoy fast and efficient interoperation with Teradata's EDW product.

SAP argues that the covenant is inapplicable because Teradata understood that SAP would use the batched merge method outside of the Bridge Project. As evidence of such an understanding, SAP cites statements from Teradata employees, including that "all developments of SAP products [are] owned by SAP (even if made by Teradata)." But interpreting those statements requires resolving disputed factual questions—for example, whether the batched merge method was part of the "development" of an SAP product. Viewing the evidence in the light most favorable to Teradata, a rational jury could conclude that the district court's interpretation would injure Teradata's right to the benefits of the contract.

REVERSED and REMANDED.